UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,406	07/26/2001	Andrea Giovanni Cigada	853063.493	1065

500 7590 07/31/2002

SEED INTELLECTUAL PROPERTY LAW GROUP PLLC
701 FIFTH AVE
SUITE 6300
SEATTLE, WA 98104-7092

EXAMINER
VU, QUANG D

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/917,406	CIGADA ET AL.
	Examiner	Art Unit
	Quang D Vu	2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "receptacle" and "conductive strip" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6, 8-15 and 16-26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 6 recites the limitation "...only of the upper surface of said frame..." in line 2. The term "only on the upper surface of said frame" does not support by the specification.

Claim 8 recites the limitation "...having a receptacle adjacent..." in line 7. The term "having a receptacle adjacent" does not support by the specification.

Claim 16 recites the limitation "...including a receptacle..." in line 7. The term "including a receptacle" does not support by the specification.

Claim 16 recites the limitation "...conductive strip..." in line 5. The term "conductive strip" does not support by the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,319,450 to Chua et al.

Regarding claim 1, Chua et al. teach a lead frame for semiconductor device comprising:

a frame (156); and

a mold (100) having at least one air vent (120) from which the resin can seep out of during the injecting phase into the mold, the air vent being positioned between an upper and a lower surface of the frame, wherein the frame includes: a through hole placed at the outlet of the

air vent so that when the resin has solidified it formed a flash which is in coherence with one of the upper and lower surfaces of the frame (see figures 2, 3A, 4 and 5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-7, 8-9, 12, 16-19 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,319,450 to Chua et al.

Regarding claim 2, Chua et al. teach the hole is in different shape such as truncated triangular prism, rectangular, ellipse (column 3, lines 24-42). Chua et al. do not teach the through hole has an ellipsoidal section having its center positioned on the axis of the air vent and has the minor diameter dimension of the hole shorter than the diameter of the air vent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal diameter dimension of the hole and the air vent, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 3, Chua et al. do not teach the through hole has a circular section with its center positioned on the axis of the air vent and has the dimension of its diameter equal to or shorter than that of the air vent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal dimension of diameter of hole and air

vent, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 4, Chua et al. teach the air vent by means of the hole having an ellipsoidal section gives rise to a flash of resin on the upper surface of the frame and to a flash of resin on the lower surface of the frame, and the thickness is about 0.035 mm. Chua et al. do not teach an overall thickness equal to or exceeding 1 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 5, Chua et al. do not teach the hole with ellipsoidal section is positioned at a distance of more than 1 mm from the air vent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal distance, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 6, Chua et al. do not teach the air vent by means of the hole of circular section gives rise to a flash only on the upper surface of the frame, the flash having a thickness ranging between 20-25 um. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 7, Chua et al. do not teach the hole of circular section is positioned at a distance of more than 1 mm from the air vent. It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimal distance, since it

has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 8, Chua et al. teach a semiconductor device; a molded portion formed around the semiconductor device and having a flashing portion of molded material extruded from the molded portion at a peripheral area thereof; and a lead-frame external to the molded portion. Chua et al. do not explicitly teach having a receptacle adjacent to the peripheral area of the molded portion, the flashing portion at least partially filling the receptacle. Chua et al. teach a container which contains the flash 125 (see figure 4). It would have been obvious to one having ordinary skill in the art to have a receptacle to fill flash in Chua et al., since Chua et al. teach the same structure of the claimed limitation.

Regarding claim 9, Chua et al. teach the receptacle is formed on an axis passing through the flashing portion (see figures 3 and 4).

Regarding claim 12, Chua et al. teach the receptacle is a recess formed in the lead frame (see figures 3B and 4).

Regarding claim 16, Chua et al. teach a semiconductor lead frame for an integrated circuit having a molded portion formed thereover, the molded portion having one or more flashing portions formed at peripheral extrusion areas thereof, the lead frame comprising: a conductive skeleton having a support surface and a plurality of conductive strips extending upwardly from the surface, and the air vent zone including a receptacle in the surface for receiving a portion of one of the flashing portions. Chua et al. do not teach the conductive strips defining an air vent zone of the surface that is structured for placement adjacent to one of the peripheral extrusion areas. It would have been obvious to one having ordinary skill in the art at the time the invention

was made to include the conductive strips defining an air vent zone of the surface that is structured for placement adjacent to one of the peripheral extrusion areas, since it is used to support the air vent.

Regarding claim 17, Chua et al. teach the receptacle is a recess formed in a surface of the conductive strip facing away from the molded portion (see figures 1, 3A, 4 and 5).

Regarding claim 18, Chua et al. teach the receptacle is aligned with the flashing portion (see figures 3A and 4).

Regarding claim 19, Chua et al. do not teach the receptacle is a passage through the conductive strip. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the conductive strip, since it is used to support the air vent.

Regarding claim 23, Chua et al. teach a semiconductor device mounted on the support surface of the conductive skeleton; and a molded portion formed over the semiconductor device, the molded portion having one or more flashing portions formed at a peripheral extrusion area thereof and extending into the receptacle (see figures 2, 3A, 4 and 5).

Regarding claim 24, Chua et al. teach a flashing portion extending between the peripheral extrusion area. Chua et al. teach the receptacle extends across a surface of the conductive strip facing away from the molded portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the conductive strip, since it is used to support the air vent.

Regarding claim 25, Chua et al. do not teach the receptacle is a passage through the conductive strip; and the flashing portion extends through the passage. It would have been

obvious to one having ordinary skill in the art at the time the invention was made to include the conductive strip, since it is used to support the air vent.

Regarding claim 26, Chua et al. teach the flashing portion forms a button portion. Chua et al. do not teach the flashing portion forms a button portion on a surface of the conductive strip facing toward the molded portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the conductive strip, since it is used to support the air vent.

7. Claims 10, 11, 13-15 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,319,450 to Chua et al. as applied to claims 8-9 above, and further in view of US Patent No. 4,777,520 to Nambu et al.

Regarding claim 10, Chua et al. do not teach the receptacle is a hole through the lead-frame. However, Nambu et al. teach the receptacle is a hole through the lead-frame (see figures 1a-b and 2a). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Nambu et al. into the device taught by Chua et al., since the hole can be used during soldering to minimize deformation of the package after heating.

Regarding claim 11, Chua et al. teach the flashing portion at least partially filling the receptacle includes a first portion formed on a first surface of the lead frame facing away from the molded portion and a second portion formed on a second surface of the lead frame facing toward the molded portion (see figures 3B and 4).

Regarding claim 13, neither Chua et al. nor Nambu et al. teach the receptacle is substantially round in shape. Nambu et al. teach the receptacle is circular shape (column 3, lines 26-31). It would have been obvious to change the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 14, Chua et al. do not teach the receptacle is substantially elliptical in shape. Nambu et al. teach the receptacle is circular shape (column 3, lines 26-31). It would have been obvious to change the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 15, Chua et al. do not teach the receptacle is spaced a predetermined distance away from the extrusion of the flashing portion from the molded portion. However, Nambu et al. teach the receptacle is spaced distance away from the flash (column 3, line 54-column 4, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Nambu et al. into the device taught by Chua et al., since it is used for the intended use.

Regarding claim 20, Chua et al. do not teach the receptacle is substantially circular in shape. However, Nambu et al. teach the receptacle is circular shape (column 3, lines 26-31). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Nambu et al. into the device taught by Chua et al., since the shape can be used for the intended use.

Regarding claim 21, neither Chua et al. nor Nambu et al. teach the receptacle is substantially ellipsoidal in shape. Nambu et al. teach the receptacle is circular shape (column 3, lines 26-31). It would have been obvious to change the shape, since such a modification would have involved a mere change in the shape of a component. A change in shape is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 22, Chua et al. do not teach the receptacle is spaced a predetermined distance away from the peripheral extrusion area. However, Nambu et al. teach the receptacle is spaced distance away from the flash (column 3, line 54- column 4, line 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teaching of Nambu et al. into the device taught by Chua et al., since it is used for the intended use.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QVU
July 25, 2002

Sara W Crane

Sara Crane
Primary Examiner